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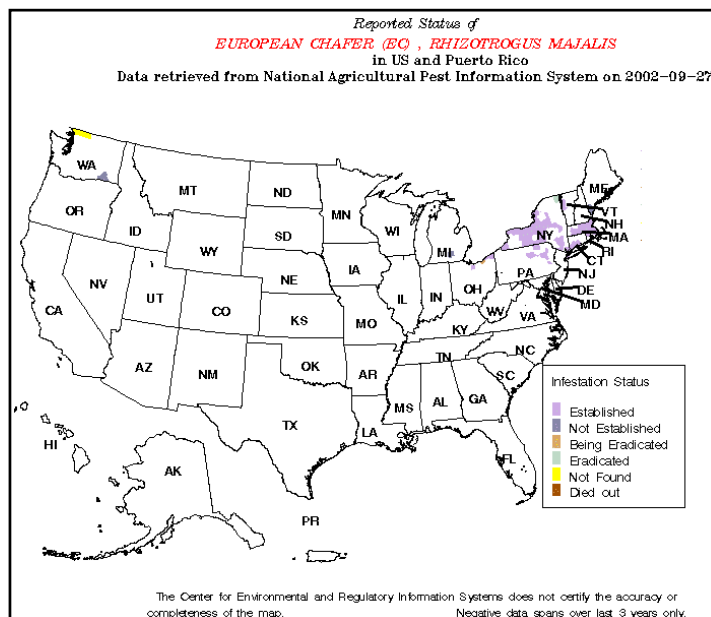
2002 Light-trap Detection Survey for European Chafer, *Rhizotrogus majalis* (Raz.) (Coleoptera: Scarabeidae), a Turf and Grain Pest Recently Found in B.C., Canada

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Background

Native to Europe, the European chafer (EC) was first found in the U.S. in 1940 in Newark, New York. Extensive infestations found in western New York, Pennsylvania, and West Virginia prompted a federal quarantine (77) in 1955 (which was revoked in 1972), but the pest remains important to export certification interests (USDA APHIS CAPS 1993). The pest subsequently spread throughout the Northeastern U.S. and adjacent Canada, and recently into Michigan, where it rapidly became "probably the most serious grub pest of home lawns" (Michigan State CES 2003). In 2001, EC was found to be established in the New Westminster area of British Columbia, Canada, where it is causing prominent damage of home lawns (Costello 2002). The known infested area in B.C., Canada, is less than 15 miles from Blaine, Washington.

Figure 1. European Chafer Distribution in U.S., 2002 (USDA).



In Europe, the pest is considered a serious pest of forage crops and winter grains, as well as lawns, and similar damage has been recorded in the U.S. In heavily infested fields in western New York, 80% loss has been recorded in permanent pastures and small grains (USDA APHIS CAPS 1993). Additional recent information from Michigan describes EC as a serious "emerging" pest of many row crops (including corn and wheat) and rivaling Japanese beetle as turf enemy number 1. (Resource links to these and other EC impact information are included in the Literature Resources).

2002 Project Objectives

- Determine light-trap methods for adult EC detection.**
 - Acquire / construct appropriate light-trap hardware.
 - Establish 2002 EC adult phenology contacts in infested B.C. area to determine adult survey detection timing.
- Conduct light-trap detection survey along U.S./Canada border.**
 - Operate light-trap stations and identify specimens collected.
 - Conduct supplemental visual survey for EC during peak adult flight around light-trap stations where and when possible.

Figure 2. EC Turf Damage in B.C., Canada, 2002



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Project Methods and Materials

Light-traps used consisted of intersecting panels, assembled from 1/4" thick, clear Plexiglas and fitted with light socket/rain shields and aluminum light trap funnels from BioQuip®. An additional, larger rain shield, cut from rigid plastic and approximately 16" diameter was also added to the top. Catch bins, attached to the bottom of the funnels, were made from plastic food storage containers with a round hole cut in the snap-top lid. Both the catch bin and funnel were attached to the light-trap panels with elastic cords. Lights used in the traps were 160 watt, 120 volt AC self-ballasted mercury vapor bulbs with conventional medium base, also from BioQuip®. Traps were suspended from tree limbs by light rope attached to a top ring, and were hung at about chest height (as in Figure 3). Trap sites were selected which had a relatively open immediate area and were near areas of varied vegetation.

During overnight operation, the catch bins were "charged" with 1-2 lbs. of dry ice wrapped in several layers of newspaper to immobilize insects collected. In the morning, catch bins were removed from the traps, placed in ice chests with additional (unwrapped) dry ice during transport, and eventually held in a standard freezer for several hours to ensure specimens were killed for mounting and identification.

In total, four individual sites were trapped in this survey, all in the Blaine, Washington area, centered on the Peace Arch State Park, which straddles the U.S./Canada border. Trapping dates were between June 25 and September 12, and a total of 16 trapping sessions were conducted (Table 1).

Several elements of this survey, including trapping timing and survey locations, relied on information about the EC situation in B.C., Canada, which was provided by Dr. Bob Costello, Entomologist with the British Columbia Ministry of Agriculture, Food and Fisheries. Dr. Costello provided preliminary location information for the B.C. EC population as well as in-season adult flight information, which was greatly appreciated.

Project Results and Discussion

No European Chafer were collected in this survey.

A large number of non-target specimens were collected, most of which are still being identified, but which did include several exotic moth species of interest. Specimens of *Archips podana*, an exotic leafroller that was the target of a host plant and parasitoid survey conducted concurrently in the Blaine area, were collected, which provided significant adult flight data for that new pest (See 2002 *Archips podana* Host Survey Report, WSDA Pub. 80 (N/02/03)).

Significant exotic pest species collected (as non-target captures) in this survey will be reported later.

Figure 3. Plexiglas Panel MV Light-trap



Table 1. Light-trap Collection Dates

| Light-Trap Survey Dates |
|-------------------------|
| June 25 |
| June 27 |
| July 2 |
| July 11 |
| July 17 |
| July 23 |
| July 25 |
| July 30 |
| August 1 |
| August 6 |
| August 8 |
| August 14 |
| August 22 |
| August 27 |
| September 10 |
| September 12 |

Pertinent Literature

Costello 2002. European Chafer – A New Turf Pest (Web Page and PDF File) B.C. Ministry of Agriculture, Food.

<http://www.agf.gov.bc.ca/cropprot/chafer.htm>

Michigan State CES 2003, Bay County, MI; European Chafer

<http://www.co.bay.mi.us/bay/home.nsf/public/F4C5D5399CDFB66A85256A24006FA0FB?OpenDocument>

Ontario Soil and Crop Improvement Association (OSCIA) - Strategy on Managing Emerging Field Crop Pests, News – June 2002, "... emerging pest of many row crops, including corn and soybeans":

<http://www.adaptcouncil.org/whatsNew/index.cfm?fuseAction=Drilldown&itemID=23>

Michigan Farm Bureau; "EC...ravaging wheat fields throughout the state...":

<http://www.michiganfarmbureau.com/press/2000/20000427.php>

Michigan Turfgrass Conference 2001, Paper titled "Japanese beetle vs. European chafer, Who is Turf Enemy Number 1",: <http://www.lib.msu.edu/turf/mtc2001/146.pdf>

USDA APHIS CAPS 1993. FACT Sheet (FACTS-25) PPQ -- made available through the CAPS program, Fact sheet for EUROPEAN CHAFER (Amphimallon Majalis), May 24, 1993

<http://www.ceris.purdue.edu/napis/pests/ec/facts.txt>

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